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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Polar organic marker compounds in atmospheric aerosols during the LBA-SMOCC 2002 biomass burning experiment in Rondônia, Brazil: sources and source processes, time series, diel variations and size distributions" *by* M. Claeys et al.

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We thank anonymous reviewer #1 for useful comments which helped to improve our manuscript. Our responses to the technical comments raised by the reviewer are as follows:

P10893, Line 17. The authors may want to add the following article by Hennigan at al. (2010). Hennigan, C. J., A. P. Sullivan, J. L. Collett, and A. L. Robinson (2010), Lev-

oglucosan stability in biomass burning particles exposed to hydroxyl radicals, Geophys. Res. Lett., 37, L09806, doi:10.1029/2010GL043088.

Re: This reference will be added in the revised version.

Figure 4, 5 and 6: I found these figures a little difficult to compare in their current form. Perhaps, the authors can put all three figures together with day/night size distributions (see comment below) and adjust the Y axis to the same scale (i.e. Fig. 4b).

Re: These figures will be combined into one figure, so that a better comparison is possible. The same ordinate scale as in Fig. 4b will be used in three of the four figures, but not for the original Fig. 6 (a note about this will be made in the figure caption). By doing so, the ordinate scale for all four figures will cover 6 orders of magnitude.

P10904, Line 12-16: Does the sulfate size distribution follow that of 2-methyltetrols?

Re: The sulfate size distributions follow quite closely those of the 2-methyltetrols. Information on sulfate size distributions can be found in Figure 4 of the article by Fuzzi et al. (2007). This information will be added in the revised manuscript.

P10905, Lines 22 and 25: This seems to be contradicting. Have the authors day and night mass size distributions for Fig. 5 and 6? It is not easy to see day/night variations in Fig. 7.

Re: Line 22 refers to PM2.5 concentrations of arabitol, mannitol, and erythritol (denoted as polyols in the manuscript), which indeed show no clear day/night variation throughout the dry, transition, and wet periods of the LBA-SMOCC 2002 campaign. It should be realized, however, that most of their mass is associated with the coarse size fraction, as discussed later in the text. Line 25 refers to the daytime and nighttime size distributions of the polyols during the dry period (Fig. 4), which show that they are mainly associated with the coarse size fraction but that the concentrations are about two times higher at night than during daytime. Fig. 5 is from a continuous 24 h sampling (thus combining daytime+nighttime) in the transition period. We do have separate

daytime and nighttime size distributions for the transition period, but they showed the same features as those for the dry period, with higher concentrations during the nighttime than in the daytime. Fig. 6 is from a continuous 48 sampling near the end in the wet period. We have separate daytime and nighttime MOUDI samples from earlier in the wet period, but they were collected over 4 daytime and 4 nighttime periods, respectively, and the nighttime MOUDI samples were not subjected to organic analyses.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 10889, 2010.